Osteosynthesis in the Hand: Current Concepts
FESSH Instructional Course 2008

Editors

Daniel B. Herren  Zürich
Ladislav Nagy  Zürich
Doug A. Campbell  Leeds

108 figures, 53 in color, 12 tables, 2008
Contents

IX Foreword

1 The AO Surgery Reference: A Source of Knowledge in Fracture Treatment
   M. Redies

4 Fracture Healing: The Evolution of Our Understanding
   S.M. Perren

12 Mechanical Aspects of Implants Used for Osteosynthesis
   R. Frigg

20 The Relevance of Implant Surfaces in Hand Fracture Fixation
   R.G. Richards

31 Pharmaceutical Agents for Acceleration of Bone Growth
   E. Vögelin

39 Fracture Management in Osteoporotic Bone
   S.M. Perren, M. Blauth

49 Angular Stable Fixation in the Hand: Where Does It Make Sense?
   R. Fricker

56 Bone Graft Substitutes in the Radius and Upper Limb
   A.L. Ladd, N.B. Pliam, J. Yao

75 Resorbable Materials for Osteosynthesis
   D. Eglin

89 Osteosynthesis in Replantation Surgery
   C. Irisarri

99 Total Wrist Fusion in Rheumatoid Arthritis: A New Perspective on Plate Fixation
   J. González del Pino

107 Osteosynthesis in Corrective Osteotomy
   Y.-Y. Chow
114 **Osteosynthesis in Growing Wrists**  
R. Zimmermann, G. Schmiedle, R. Arora, M. Lutz, M. Gabl

135 **Soft Tissue Complications in Osteosynthesis**  
S.C. Tay, L.C. Theo

142 **Osteosynthesis of the Upper Extremity in the Presence of Infection: Diagnosis and Treatment Rationale**  
M. Calcagni, I. Tami, P. Giovanoli

149 **Complex Regional Pain Syndrome**  
M.R. Wiegand

156 **Outcome Measurement after Osteosynthesis of the Distal Radius**  
J. Goldhahn, F. Angst, G. Germann, A. Harth, B.R. Simmen, D.B. Herren

162 **Tips, Tricks and Pearls of Osteosynthesis**  
A.-P.C. Weiss

173 **Subject Index**
List of Contributors

Maurizio Calcagni  
Division of Plastic and Reconstructive Surgery  
University Hospital Zürich  
Zürich (Switzerland)  
E-Mail maurizio.calcagni@usz.ch

Yuk-Yin Chow  
Department of Orthopaedics and Traumatology  
Tuen Mun Hospital  
Tuen Mun, New Territories  
Hong Kong, SAR  
E-Mail dryychow@ha.org.hk

David Eglin  
Biomaterials and Tissue Engineering Program  
AO Research Institute  
Davos (Switzerland)  
E-Mail david.egin@aofoundation.org

Renato Fricker  
Head of the Hand Surgery Unit  
Kantonsspital Bruderholz  
Bruderholz (Switzerland)  
E-Mail renato.fricker@ksbh.ch

Robert Frigg  
Chief Technology Officer Synthes  
Bettlach (Switzerland)  
E-Mail frigg.robert@synthes.com

Jörg Goldhahn  
Musculoskeletal Research  
Schulthess Klinik  
Zürich (Switzerland)  
E-Mail joerg.goldhahn@kws.ch

Carlos Irisarri  
Hand Surgery Unit, Centro Médico El Castro  
Vigo (Spain)  
E-Mail irisarri@iies.es

Amy L. Ladd  
Hand and Orthopaedic Surgery  
Stanford University School of Medicine  
Palo Alto, CA (USA)  
E-Mail alad@stanford.edu

Stephan M. Perren  
AO Research Institute  
Davos (Switzerland)  
E-Mail sperren1@bluewin.ch

Juan González del Pino  
Servicio de Cirugía de la Mano  
Hospital Virgen de la Torre  
C/ Puerto Lumbreras S  
Madrid (Spain)  
E-Mail juangpino@telefonica.net

Mike Redies  
AO Research Institute  
Davos (Switzerland)  
E-Mail michael.redies@aofoundation.org

R. Geoff Richards  
AO Research Institute  
Davos (Switzerland)  
E-Mail geoff.richards@aofoundation.org
Shian Chao Tay  
Department of Hand Surgery  
Singapore General Hospital  
Singapore  
E-Mail tay_sc77@yahoo.com

Esther Vögelin  
Department of Plastic and Hand Surgery  
Inselspital Bern  
Bern (Switzerland)  
E-Mail esther.voglein@insel.ch

Mischa Wiegand  
Handsurgery Department  
Schulthess Klinik  
Zürich (Switzerland)  
E-Mail mischa.wiegand@kws.ch

Arnold-Peter C. Weiss  
Alpert Medical School  
Brown University  
Providence, RI (USA)  
E-Mail Arnold-Peter_Weiss@brown.edu

Robert Zimmermann  
Universitätsklinik für Unfallchirurgie und  
Sporttraumatologie  
Medizinische Universität  
Innsbruck (Austria)  
E-Mail Robert.Zimmermann@uki.at
Fracture fixation in osteoporotic bone, fixed-angle implants, and bone morphogenic proteins are just a few of the new phrases heard in contemporary discussions on osteosynthesis. This book, together with the instructional course held at the FESSH Congress 2008 in Lausanne, gives a comprehensive overview of the current state of the art and the different evolving aspects of osteosynthesis. We are grateful to the contributors, who have all generously shared their expertise. Special thanks go to Synthes, who nobly sponsored this book.

The inclusion of basic scientific papers as well as coverage of important clinical applications serves to highlight some of the newer topics in osteosynthesis. We hope that this book will communicate these achievements and advances to a wider audience and will be used to shape progress in the care of the fracture patients.

Daniel B. Herren
Ladislav Nagy
Doug A. Campbell